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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/507,168	HEUTS ET AL.
Office Action Summary	Examiner	Art Unit
	Michael J. Feely	1796
The MAILING DATE of this communication ap Period for Reply	opears on the cover sheet with the c	correspondence address
A SHORTENED STATUTORY PERIOD FOR REPI WHICHEVER IS LONGER, FROM THE MAILING I - Extensions of time may be available under the provisions of 37 CFR 1 after SIX (6) MONTHS from the mailing date of this communication. - If NO period for reply is specified above, the maximum statutory period - Failure to reply within the set or extended period for reply will, by statu Any reply received by the Office later than three months after the maili earned patent term adjustment. See 37 CFR 1.704(b).	DATE OF THIS COMMUNICATION .136(a). In no event, however, may a reply be tired will apply and will expire SIX (6) MONTHS from the, cause the application to become ABANDONE	N. nely filed the mailing date of this communication. ED (35 U.S.C. § 133).
Status		
Responsive to communication(s) filed on 15	is action is non-final. ance except for formal matters, pro	
Disposition of Claims		
4) Claim(s) 1 and 3-34 is/are pending in the approach 4a) Of the above claim(s) is/are withdress. 5) Claim(s) is/are allowed. 6) Claim(s) 1 and 3-34 is/are rejected. 7) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/	awn from consideration.	
Application Papers		
9) The specification is objected to by the Examination 10) The drawing(s) filed on is/are: a) according an applicant may not request that any objection to the Replacement drawing sheet(s) including the correction 11) The oath or declaration is objected to by the Examination is objected.	ccepted or b) objected to by the e drawing(s) be held in abeyance. Section is required if the drawing(s) is ob	e 37 CFR 1.85(a). jected to. See 37 CFR 1.121(d).
Priority under 35 U.S.C. § 119		
12) Acknowledgment is made of a claim for foreig a) All b) Some * c) None of: 1. Certified copies of the priority documer 2. Certified copies of the priority documer 3. Copies of the certified copies of the pri application from the International Burea * See the attached detailed Office action for a list	nts have been received. nts have been received in Applicat ority documents have been receive au (PCT Rule 17.2(a)).	ion No ed in this National Stage
Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date	4) Interview Summary Paper No(s)/Mail D 5) Notice of Informal F 6) Other:	ate

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DETAILED ACTION

Pending Claims

Claims 1 and 3-34 are pending.

Claim Rejections - 35 USC § 102/103

- 1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
- 2. The rejection of claims 1, 3-8, 11, 14, 15, 17-22, and 25-34 under 35 U.S.C. 102(b) as being anticipated by Neumann et al. (US Pat. No. 5,932,636) *stands for the reasons of record*.
- 3. Claims 1, 3-8, 11, 14, 15, 17-22, and 25-34 are alternatively rejected under 35 U.S.C. 103(a) as obvious over Neumann et al. (US Pat. No. 5,932,636).

Regarding claims 1, 3-8, 11, 14, 15, 17-22, and 25-34, Neumann et al. disclose: (1) a method of preparing a coating composition (Abstract; column 1, line 64 through column 2, line 34), comprising the steps of: combining an amine and an epoxy material in the presence of a reactive diluent (column 2, lines 62-67; column 7, lines 12-17; column 9, lines 54-56) comprising at least one methacrylate compound (column 9, line 54 through column 10, line 28) to provide a composition comprising an advanced molecular weight epoxy-amine material and a reactive diluent (column 2, lines 62-67; column 3, line 1 through column 7, line 65; column 9, lines 54-56); making an aqueous dispersion of the composition (column 2, lines 62-67); and polymerizing the reactive diluent to provide the coating composition (column 2, lines 62-67);

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(3) wherein the step of making the aqueous dispersion comprises combining the composition with an acid (column 10, line 60 through column 11, line 10); (14) wherein the acid is an aqueous acid (column 10, line 60 through column 11, line 10);

- (4) wherein the epoxy material is derived from bisphenol A and epichlorohydrin (column 3, line 38 through column 4, line 31);
- (5) wherein the epoxy material is dissolved or dispersed in the reactive diluent (column 7, lines 12-17; column 9, lines 54-56);
- (6) wherein the epoxy-amine material has residual epoxy functionality (column 7, lines 1-6); (7) further comprising the step of: reacting the epoxy-amine material having residual epoxy functionality with an active hydrogen compound or precursor (column 3, lines 29-37; column 7, lines 32-65; column 10, line 60 through column 11, line 10); (8) wherein the step of reacting is carried out before the step of making the aqueous dispersion (column 3, lines 29-37; column 7, lines 32-65; column 10, line 60 through column 11, line 10);
- (11) wherein the coating composition further comprises a crosslinker (column 2, lines 62-67);
- (15) wherein the step of making the aqueous dispersion comprises: combining the composition with an acid to provide an acidified composition; and combining the acidified composition with an aqueous liquid (column 10, line 60 through column 11, line 10);
- (17) wherein the reactive diluent comprises a multifunctional material (column 9, line 54 through column 10, line 28);
- (18) further comprising the step of: adding an additional reactive diluent before the polymerization step (column 9, line 54 through column 10, line 28);

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"substantially free");

(19) wherein the reactive diluent is polymerized by free radical polymerization (column

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2, lines 62-67; column 7, lines 12-17);

(20) wherein the coating composition further comprises a solvent (column 10, line 60 through column 11, line 20: water; column 1, lines 64-67: minor amounts present when

(21) wherein the coating composition is selected from the group consisting of a packaging coating composition, an anticorrosive coating composition, a stain blocker coating composition, a paper coating composition, a cement board coating composition, a fiberboard coating composition, and combinations thereof (column 11, lines 33-42);

- (22) wherein the coating composition is substantially free of solvent (column 1, lines 64-67);
- (25) a coating composition prepared according to the method of claim 1 (column 11, lines 33-42);
- (26) a method of coating an article (column 13, lines 41-53) comprising the steps of: applying a coating composition prepared according to the method of claim 1 to an article (column 13, lines 41-53); and hardening the coating composition to provide a coated article (column 13, lines 41-53); (27) wherein the coating composition further comprises a crosslinker (column 2, lines 62-67; column 13, lines 41-53); (28) further comprising the step of heating the coated article to provide a crosslinked coating (column 13, lines 62-67); (29) wherein the step of applying comprises applying the coating composition by an electro coat process (column 13, lines 62-67);

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(column 10, lines 7-24); (31) wherein the reactive diluent further comprises at least one vinyl compound (column 9, lines 58; column 10, lines 7-24); (32) wherein the at least one vinyl compound comprises styrene (column 10, lines 7-24); (33) wherein at least 7.5% by weight and at most 80% by weight reactive diluent is used, based on the total combined weight of epoxy material, amine, and reactive diluent (column 10, lines 25-28); (34) wherein at least 15% by weight and at most 50% by weight reactive diluent is used, based on the total combined weight of epoxy material, amine, and reactive diluent (column 10, lines 25-28).

With respect to the presence of the reactive diluent during combination/reaction of the amine and epoxy materials, it is not immediately clear if Neumann et al. are sufficiently specific to satisfy an anticipation of the instant invention (see column 9, lines 54-57). Accordingly, the claims have been alternatively rejected as obvious over Neumann et al.

Neumann et al. disclose that the reactive monomer: (a) may be already present during the synthesis of the amino-epoxy resin; (b) may be already present during the synthesis of the blocked isocyanate; (c) may be added after the synthesis of the amino-epoxy resin; or (d) may be added after the synthesis of the blocked isocyanate (see column 9, lines 54-57). These options are disclose as equivalent techniques. Therefore, the selection of technique (a) would have been obvious, at the very least. Furthermore, it should be noted that technique (a) is featured in the claims of Neumann et al.

Therefore, if not explicitly taught by Neumann et al., then it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the reactive diluent during the combination/reaction of the amine and epoxy materials because Neumann et al. disclose a set

of alternative/equivalent techniques including: (a) wherein the reactive monomer is already present during the synthesis of the amino-epoxy resin.

With respect to the use of a methacrylate compound (alone or with other compounds – see: reactive diluent comprising at least one methacrylate compound) as the reactive diluent, it is not immediately clear if Neumann et al. are sufficiently specific to satisfy an anticipation of the instant invention (see column 9, line 54 through column 10, line 24). Accordingly, the claims have been alternatively rejected as obvious over Neumann et al.

Neumann et al. disclose that the unsaturated monomer includes *one or more* of any known in the art, such as vinyl monomers. These vinyl monomers include methacrylate compounds (*see column 9, line 54 through column 10, line 24*). He even mentions preference to methacrylate materials, such as n-butyl methacrylate and methyl methacrylate. Furthermore, it should be noted that methacrylate materials are featured in the claims of Neumann et al.

Therefore, it not explicitly taught by Neumann et al., then it would have been obvious to one of ordinary skill in the art at the time of the invention to use a reactive diluent comprising a methacrylate compound because Neumann et al. disclose that the unsaturated monomer includes *one or more* of any known in the art, such as vinyl monomers. Furthermore, these contemplated vinyl monomers include methacrylate compounds.

4. The rejection of claims 23 and 24 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Neumann et al. (US Pat. No. 5,932,636) stands for the reasons of record.

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Regarding claims 23 and 24, Neumann et al. fail to explicitly disclose: (23 & 24) wherein the coating composition has a volatile organic compound content of at most 0.2 kilograms per liter of solids. Rather, they disclose a composition that is *substantially free from organic* solvents (see column 1, lines 64-67). It would appear to the skilled artisan that the instantly claimed range would have inherently fallen within the scope of *substantially free*.

Therefore, the instantly claimed VOC content would have been inherently satisfied by the teachings of Neumann et al. because they disclose a composition that is *substantially free from organic solvents*. The instantly claimed range would have inherently fallen within the scope of *substantially free*.

Claim Rejections - 35 USC § 103

5. The rejection of claims 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Neumann et al. (US Pat. No. 5,932,636) *stands for the reasons of record*.

Regarding claims 9 and 10, Neumann et al. disclose that the amino-epoxy resins may be modified by at least one primary and/or secondary hydroxyl group, by a dialkylamino group and/or by a primary amino group which is temporarily protected by ketimine formation (see column 3, lines 34-37). Based on the disclosure, it appears that this modification occurs before the step of making the aqueous dispersion and before the step of polymerizing the reactive diluent. Hence, Neumann et al. fail to disclose: (9) wherein the step of reacting is carried out after the step of making the aqueous dispersion; and (10) wherein the step of reacting is carried out after the step of polymerizing the reactive diluent.

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It should be noted that the limitations of the instant invention represent a change in order of process steps. In light of this, it has been found that the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. It has also been found that the selection of any order of mixing ingredients is *prima facie* obvious in the absence of new or unexpected results - *see MPEP 2144.04 IV C*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the instantly claimed order of process steps in the method of Neumann et al. because it has been found that the selection of any order of performing process steps or mixing ingredients is *prima facie* obvious in the absence of new or unexpected results.

6. The rejection of claims 1 and 3-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bremser et al. (US Pat. No. 6,201,043) *stands for the reasons of record*.

Regarding claims 1 and 3-34, Bremser et al. disclose: (1) a method of preparing a coating composition (Abstract), comprising the steps of: combining an amine and an epoxy material and a reactive diluent (Abstract) comprising at least one methacrylate compound (Abstract; column 2, line 62 through column 3, line 15; column 6, lines 47-62) to provide a composition comprising an advanced molecular weight epoxy-amine material and a reactive diluent (Abstract); making an aqueous dispersion of the composition (Abstract; column 4, lines 38-40); and polymerizing the reactive diluent to provide the coating composition (Abstract; column 6, line 63 through column 7, line 27);

(3) wherein the step of making the aqueous dispersion comprises combining the composition with an acid (Abstract; column 4, lines 38-40); (13) wherein the composition is

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combined with a surfactant (column 8, lines 26-30); (14) wherein the acid is an aqueous acid (column 4, liens 38-40); (24) wherein the coating composition has a volatile organic compound content, excluding acid, of at most 0.2 kilograms per liter of solids (column 8, lines 40-44: when little or no solvent is used);

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- (4) wherein the epoxy material is derived from bisphenol A and epichlorohydrin (column 4, line 49 through column 5, line 53);
- (6) wherein the epoxy-amine material has residual epoxy functionality (column 4, lines 11-21); (7) further comprising the step of: reacting the epoxy-amine material having residual epoxy functionality with an active hydrogen compound or precursor (column 4, lines 11-21); (8) wherein the step of reacting is carried out before the step of making the aqueous dispersion (column 4, lines 11-21);
- (11) wherein the coating composition further comprises a crosslinker (column 4, lines 46-48: mixture of epoxy-amine adducts, wherein both are capable are being crosslinkers);
- (12) wherein the aqueous dispersion further comprises a surfactant (column 8, lines 26-30);
- (15) wherein the step of making the aqueous dispersion comprises: combining the composition with an acid to provide an acidified composition; and combining the acidified composition with an aqueous liquid (column 4, lines 38-40); (16) wherein the aqueous liquid further comprises a surfactant (column 8, lines 26-30);
- (17) wherein the reactive diluent comprises a multifunctional material (Abstract; column 2, line 62 through column 3, line 15; column 6, lines 47-62);

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62);

(18) further comprising the step of: adding an additional reactive diluent before the polymerization step (Abstract; column 2, line 62 through column 3, line 15; column 6, lines 47-

- (19) wherein the reactive diluent is polymerized by free radical polymerization (Abstract; column 6, line 63 through column 7, line 27);
- (20) wherein the coating composition further comprises a solvent (column 8, lines 40-44);
- (21) wherein the coating composition is selected from the group consisting of a packaging coating composition, an anticorrosive coating composition, a stain blocker coating composition, a paper coating composition, a cement board coating composition, a fiberboard coating composition, and combinations thereof (column 7, line 28 through column 8, line 36);
- (22) wherein the coating composition is substantially free of solvent (column 8, lines 40-44: when little or no solvent is used);
- (23) wherein the coating composition has a volatile organic compound content of at most 0.2 kilograms per liter of solids (column 8, lines 40-44: when little or no solvent is used);
- (25) a coating composition prepared according to the method of claim 1 (Abstract; column 7, line 28 through column 8, line 36);
- (26) a method of coating an article (column 11, line 25 through column 12, line 12) comprising the steps of: applying a coating composition prepared according to the method of claim 1 to an article (column 11, line 25 through column 12, line 12); and hardening the coating composition to provide a coated article (column 11, line 25 through column 12, line 12); (27) wherein the coating composition further comprises a crosslinker (column 4, lines 46-48: mixture

of epoxy-amine adducts, wherein both are capable are being crosslinkers); (28) further comprising the step of heating the coated article to provide a crosslinked coating (column 11, line 25 through column 12, line 12); (29) wherein the step of applying comprises applying the coating composition by an electro coat process (column 11, line 25 through column 12, line 12);

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(30) wherein the at least one methacrylate compound comprises butyl methacrylate (column 2, line 62 through column 3, line 15; column 6, lines 47-62); (31) wherein the reactive diluent further comprises at least one vinyl compound (column 2, line 62 through column 3, line 15; column 6, lines 47-62); (32) wherein the at least one vinyl compound comprises styrene (column 2, line 62 through column 3, line 15; column 6, lines 47-62); (33) wherein at least 7.5% by weight and at most 80% by weight reactive diluent is used, based on the total combined weight of epoxy material, amine, and reactive diluent (column 6, lines 47-53); (34) wherein at least 15% by weight and at most 50% by weight reactive diluent is used, based on the total combined weight of epoxy material, amine, and reactive diluent (column 6, lines 47-53).

Bremser et al. fail to disclose the step of: (1) combining an amine and an epoxy material in the presence of a reactive diluent comprising at least one methacrylate compound; (5) wherein the epoxy material is dissolved or dispersed in the reactive diluent. Rather, they introduce the reactive diluent after forming the epoxy-amine adduct.

It should be noted that the limitations of the instant invention represent a change in order of process steps. In light of this, it has been found that the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. It has also been found that the selection of any order of mixing ingredients is *prima facie* obvious in the absence of new or unexpected results - *see MPEP 2144.04 IV C*.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the instantly claimed order of process steps in the method of Bremser et al. because it has been found that the selection of any order of performing process steps or mixing ingredients is *prima facie* obvious in the absence of new or unexpected results.

Bremser et al. also fail to disclose: (9) wherein the step of reacting (see claim 7) is carried out after the step of making the aqueous dispersion; (10) wherein the step of reacting (see claim 7) is carried out after the step of polymerizing the reactive diluent; and (13) wherein the composition is combined with a surfactant before combining the composition with the acid.

Again, it should be noted that the limitations of the instant invention represent a change in order of process steps. In light of this, it has been found that the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. It has also been found that the selection of any order of mixing ingredients is *prima facie* obvious in the absence of new or unexpected results - *see MPEP 2144.04 IV C*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the instantly claimed order of process steps in the method of Bremser et al. because it has been found that the selection of any order of performing process steps or mixing ingredients is *prima facie* obvious in the absence of new or unexpected results.

7. The rejection of claims 12, 13, and 16 under 35 U.S.C. 103(a) as being unpatentable over Neumann et al. (US Pat. No. 5,932,636) in view of Bremser et al. (US Pat. No. 6,201,043) *stands* for the reasons of record.

Regarding claims 13, 13, and 16, the analogous teachings are Neumann et al. and Bremser et al. are as set forth above and incorporated herein. Neumann et al. are silent regarding the use of surfactants; however, Bremser et al. disclose that these are *customary auxiliaries* for this type of composition. Furthermore, any sequence of adding this surfactant would have been *prima facie* obvious in the absence of new or unexpected results.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add a surfactant, as taught by Bremser et al., in the composition of Neumann et al. because the teachings of Bremser et al. demonstrate that surfactants are *customary auxiliaries* for this type of composition. Furthermore, any sequence of adding this surfactant would have been *prima facie* obvious in the absence of new or unexpected results.

Response to Arguments

8. Applicant's arguments, filed May 15, 2008, with respect to Neumann et al. have been considered but are moot in view of the new ground(s) of rejection.

<u>Regarding the presence of the reactive diluent</u>, Applicant argues that Neumann et al. do not clearly teach that *the preference* is for monomers already present during the synthesis of the amino-epoxy resin.

It should be first noted that, "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain," – *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006,

1009, 158 USPQ 275, 277 (CCPA 1968)). Furthermore, it should be noted that *non-preferred* and alternative embodiments constitute prior art – *see MPEP 2123*.

It should be further noted that Neumann et al. disclose that the reactive monomer: (a) may be already present during the synthesis of the amino-epoxy resin; (b) may be already present during the synthesis of the blocked isocyanate; (c) may be added after the synthesis of the amino-epoxy resin; or (d) may be added after the synthesis of the blocked isocyanate (see column 9, lines 54-57). These options are disclose as equivalent techniques. Therefore, it not explicitly taught, the selection of technique (a) would have been obvious. Furthermore, it should be noted that technique (a) is featured in the claims of Neumann et al.

Regarding the reactive diluent, Applicant states that they discovered "preferred reactive diluents include vinyl compounds, methacrylate compounds, and combinations thereof." They further state that "acrylate compounds are not preferred as reactive diluents, because acrylate monomers may be reactive in the presence of an amine and an epoxy material;" and, "reactive diluents refers to monomers and/or oligomers that are substantially non-reactive with the epoxy material and/or amine under the conditions used to prepare the epoxy-amine." In light of this, they argue that Neumann et al. provide insufficient guidance for one of skill in the art to combine an amine and an epoxy material in the presence of a methacrylate reactive diluent.

It should be first noted that Neumann et al. disclose an unsaturated monomer including one or more of any known in the art, such as vinyl monomers. These vinyl monomers include methacrylate compounds (see column 9, line 54 through column 10, line 24). He even mentions preference to methacrylate materials, such as n-butyl methacrylate and methyl methacrylate. Therefore, it not explicitly taught, the selection of a reactive diluent comprising a methacrylate

compound would have been obvious. Furthermore, it should be noted that methacrylate compounds are featured in the claims of Neumann et al.

It should be further noted that the claims do not explicitly exclude the use of acrylate monomers. As stated by the Applicants, acrylate monomers *may be reactive* in the presence of an amine and an epoxy material. Apparently this is not always the case, as suggested by the use of the language *may be*. Furthermore, the reactive diluent is presented with the open language of *comprising*. Therefore, it can feature other materials in combination with the at least one methacrylate compound. These other materials would appear to include acrylate compounds, which may *(or may not)* be reactive in the presence of an amine and an epoxy material.

9. Applicant's arguments, filed May 15, 2008, with respect to Bremser et al. have been fully considered but they are not persuasive.

Applicants argue that combining an amine and an epoxy material in the presence of a reactive diluent can lead to results that are advantageous over introducing a reactive diluent after forming the epoxy-amine adduct because: (a) this technique is a solution to solve the problem of using *excess* organic solvent; and (b) this technique can allow for the preparation of waterborne *coating* compositions that are substantially free of solvent and/or have low volatile organic compound content. They further argue that Bremser et al. use substantial amounts of solvent in their preparation technique, as indicated by solids content.

It should be first noted that only dependent claims 20 and 22 address the presence of solvent, wherein claim 22 calls for a coating composition substantially free of solvent. Claim 20 actually calls for the *presence* of solvent, inclusive of *excess* and *low content*. This appears to run counter to Applicant's cited advantage over Bremser et al.

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It should be further noted that Bremser et al. *preferably* carry out their amine/epoxy reaction in an organic solvent (*see column 4, lines 34-38*). Therefore, their technique is not explicitly bound to the use of solvent. Regardless, the solvent technique further involves the steps of neutralization and conversion to an aqueous solution/dispersion (*see column 4, lines 38-40; Example 4*). This aqueous solution/dispersion is further diluted with water to form an aqueous coating composition (*see column 7, lines 28-42; Example 6*). Although the amine/epoxy reaction may take place in the presence of solvent, the final aqueous *coating composition* is diluted with water to such and extend that the final solvent content does not appear to be significant.

Communication

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The

examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

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information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/

Primary Examiner, Art Unit 1796

August 8, 2008